

claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references.” *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985).

“To establish a *prima facie* case of obviousness, three basic criteria must be met.” MPEP §706.02(j). First, there must be some **suggestion or motivation**, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a **reasonable expectation of success**. Finally, the prior art reference (or references when combined) **must teach or suggest all the claim limitations**. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

The law regarding *obviousness* is clear -- any modification of the prior art must be suggested or motivated by the prior art.

'Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination. Under section 103, teachings of references can be combined only if there is some suggestion or incentive to do so.' [citation omitted] Although couched in terms of combined teachings found in the prior art, the same inquiry must be carried out in the context of a purported obvious "modification" of the prior art. The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification.

In re Fritch, 972 F.2d 1260; 23 USPQ2d 1780, 1783-84 (Fed. Cir. 1992), (in part quoting from *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 732 F.2d 1572, 1577; 221 USPQ 929, 933 (Fed. Cir. 1984)).

It is also submitted that the mere fact that one may argue that the prior art is capable of being modified to achieve a claimed structure does not by itself make the claimed structure obvious -- there must be a motivation provided by the prior art.

The examiner finds the claimed shape would have been obvious urging that (our emphasis) "it is obvious for one skilled in the art to form each hook base of any

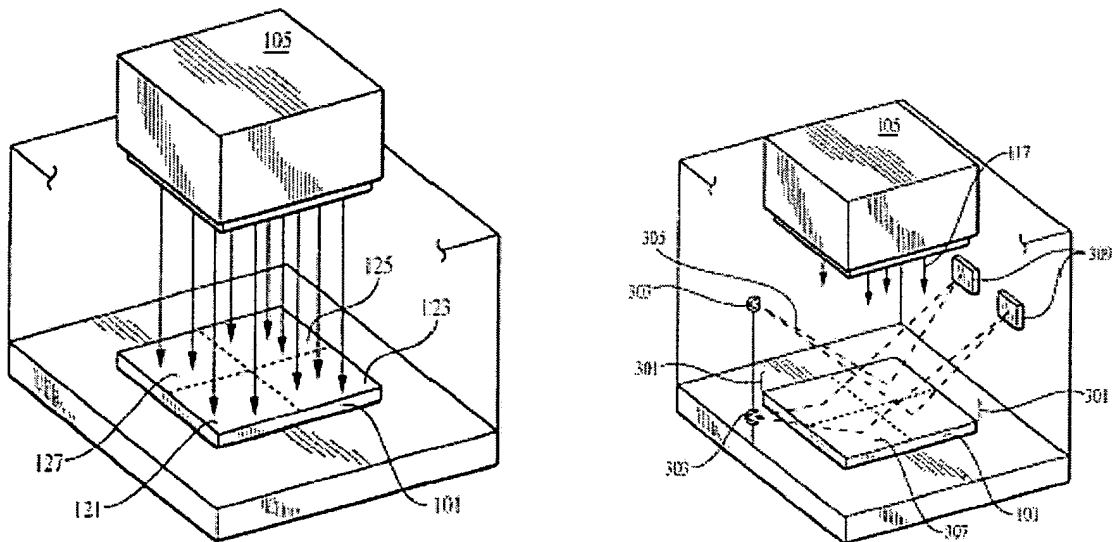
desired shape *** since *this is within the capabilities of such a person.*" Thus, the examiner equates that which is within the capabilities of one skilled in the art with obviousness. Such is not the law. There is nothing in the statutes or the case law which makes "that which is within the capabilities of one skilled in the art" synonymous with obviousness.

The examiner provides no reason why, absent the instant disclosure, one of ordinary skill in the art would be motivated to change the shape of the coil hooks of Hancock or the German patent and we can conceive of no reason.

Ex parte Gerlach and Woerner, 212 USPQ 471 (PTO Bd. App. 1980) (emphasis in original).

2. *Patel (U.S. Patent No. 6,484,521)*

Patel teaches a "semiconductor chip cooling system configured with thermal inkjet type sprayers controlled by a control system." (Abstract) More particularly, Patel teaches the usage of "a large number of incremental sprayers, each configured and targeted to eject an incremental amount of the cooling fluid on a particular portion of the chip." (Column 5, Lines 6-8.) Patel further states that "a preferred type of incremental spray for the spray head 105 is an inkjet-type sprayer." (Column 5, Lines 55-57.) In Patel, the cooling surface of the chip 101 is divided into "regions" where a specific group of incremental sprayers only targets one region of the chip. (Column 5, Lines 15-25.)



Patel (U.S. Patent No. 6,484,521)

The only means that Patel has to control the temperature of the chip is by adjusting the “flow rate”. Because Patel utilizes incremental sprayers (e.g. inkjet-type), it only teaches the “increasing or decreasing the frequency that a particular group of incremental sprayers is energized.” (Column 5, Lines 15-17.)

As agreed to in the Office Action, Patel does not teach the adjustment of the distance between the inkjet-type of sprayers and the electronic device. This is because Patel because Patent “increas[es] or decreas[es] the frequency that a particular group of incremental sprayers is energized” – not the spraying distance. (Column 5, Lines 15-17.) There simply is no suggestion or motivation within Patel to provide a method for “adjusting a spraying distance.” Patel thermally manages the electronic device using stationary positioned incremental sprays where the “frequency” is adjusted, so there is no reason for “adjusting a spraying distance.”

3. Roche (U.S. Publication No. 2003/0098341)

Roche teaches a “*method for implementing post-heat treatment during spray forming to achieve stress control in the manufacture of a spray formed metallic tool.*” (Abstract.) Roche teaches spraying a moltenized metal spray onto a ceramic mold substrate to form tools such as large stamping tools for stamping an automobile hood. Roche causes a “substantially homogenous metallic phase transformations from the austenite phase” to other phases (e.g. pearlite, ferrite and bainite) upon the “mold substrate.” When the moltenized metal spray is sprayed upon the ceramic mold substrate, the temperature is extremely high (above 750°C). As the temperature decreases, the phase changes accordingly.

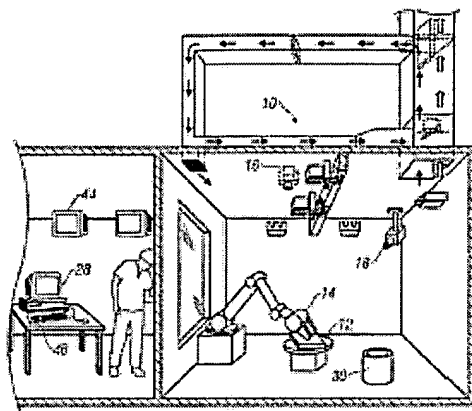


FIG. 2

Figure 2 of Roche (U.S. Publication No. 2003/0098341)

The Applicant respectfully submits that Roche is non-analogous to the present invention. Roche is not within the art of thermally managing one or more electronic devices.

“The determination that a reference is from a non-analogous art is . . . twofold. First, we decide if the reference is **within the field of the inventor’s endeavor**. If it is not, we proceed to determine whether the reference is **reasonably pertinent to the particular problem with which the inventor was involved**.” *In re Wood*, 202 USPQ 171, 174 (C.C.P.A. 1979). “A reference is **reasonably pertinent** if . . . it is one which, because of the matter with which it deals, logically would have commended itself to the inventor’s attention in considering his problem. . . . If a reference disclosure has the same purpose as the claimed invention, the reference relates to the same problem, . . . [i]f it is directed to a different purpose, the inventor would accordingly have had less motivation or occasion to consider it.” *In re Clay*, 23 USPQ 2d 1058, 1060–61 (Fed. Cir. 1992).

First, Roche is not within the field of the inventor’s endeavor (i.e. thermally managing electronic devices). Second, Roche is not reasonably pertinent to the particular problem with which the inventor was involved (i.e. reducing and maintaining the temperature of a heat producing electronic device). Roche involves applying an extremely hot moltenized metal spray onto a ceramic mold. In other words, Roche has the opposite purpose of the present invention since Roche attempts to maintain an extremely hot temperature (e.g. 700° C or higher) of

moltenized metal spray during application to a ceramic mold, whereas the present invention maintains a relatively low temperature (e.g. approximately 100° C or lower).

The Applicant also respectfully submits the following case law in support that Roche is non-analogous:

- “In resolving the question of obviousness under 35 USC 103, we presume full knowledge by the inventor of all the prior art in the field of his endeavor. However, with regard to prior art outside the field of his endeavor, we only presume knowledge from those arts reasonably pertinent to the particular problem with which the inventor was involved. . . . The rationale behind this rule precluding rejections based on combination of teachings of references from nonanalogous arts is the realization that an inventor could not possibly be aware of every teaching in every art.” *In re Wood*, 202 USPQ 171, 174 (C.C.P.A. 1979).
- “We have reminded ourselves and the PTO that it is necessary to consider “the reality of the circumstances” . . . — in other words, common sense—in deciding in which fields a person of ordinary skill would reasonably be expected to look for a solution to the problem facing the inventor.” *In re Oetiker*, 24 USPQ 2d 1443, 1446 (Fed. Cir. 1992).
- “The Allen-Bradley art is not in the same field of endeavor as the claimed subject matter merely because it relates to memories. It involves memory circuits in which modules of varying sizes may be added or replaced; in contrast, the subject patents teach compact modular memories. . . . Wang’s SIMMs were designed to provide compact computer memory with minimum size, low cost, easy repairability, and easy expandability. . . . In contrast, the Allen-Bradley patent relates to a memory circuit for a larger, more costly industrial controller. . . . Thus, there is substantial evidence in the record to support a finding that the Allen-Bradley prior art is not reasonably pertinent and is not analogous.” *Wang Labs., Inc. v. Toshiba Corp.*, 26 USPQ 2d 1767, 1773 (Fed. Cir. 1993).

4. *Claims 1-17 Are Allowable Over Patel and Roche*

Even if Roche were considered analogous to the present invention, there simply is **no suggestion or motivation** to modify Patel to have an “adjusting a spraying distance” in the references themselves or in the knowledge generally available to one of ordinary skill in the art. As stated previously, Patel utilizes “frequency” control for its inkjet-type incremental sprays to control the temperature of an electronic device (i.e. it increases the frequency if increased cooling is desired and it decreases the frequency if decreased cooling is desired). Roche simply does not suggest or provide any motivation for “adjusting a spraying distance” to maintain a desired

temperature of an electronic device – Roche is only concerned about maintaining a desired temperature of the extremely hot moltenized metal sprayed upon a ceramic mold (i.e. even if we were to consider the ceramic mold in Roche to be an “electronic device,” any adjustment of the spraying distance would not be to control the temperature of the ceramic mold – it would be solely for controlling the temperature of the moltenized metal sprayed upon the ceramic mold).

Second, there is **no reasonable expectation of success** to combine Patel and Roche. In Roche, the sprayer that sprays the hot moltenized metal upon the ceramic mold is attached to a large robotic arm within a large room. Patel is comprised of a very limited area which is not capable of receiving a large robotic arm. Furthermore, in Roche to increase cooling of a molten layer, the robotic arm will increase the distance between the sprayer and the ceramic mold (vice versa, if the goal is to decrease cooling or increase heating, the robotic arm will decrease the distance between the sprayer and the ceramic mold). The present invention decreases the distance for increased cooling and increases the distance for decreased cooling – this is the opposite of Roche.

Finally, Patel and Roche when combined do **not teach or suggest all the claim features**. Neither Patel nor Roche teach or suggest “adjusting a spraying distance between said at least one electronic device and at least one spray unit based upon said device temperature of said at least one electronic device.”

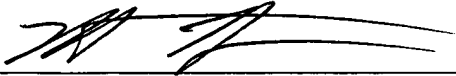
For these reasons, among others, the combination of Patel with Roche cannot suggest the combination of features in applicant’s Claims 1-17 and it is therefore submitted that the rejection against these claims should be withdrawn and Claims 1-17 allowed.

C. **CONCLUSION**

In light of the foregoing amendments and remarks, early reconsideration and allowance of this application are most courteously solicited. Should the Examiner consider necessary or desirable any formal changes anywhere in the specification, claims and/or drawing, then it is

respectfully asked that such changes be made by Examiner's Amendment, if the Examiner feels this would facilitate passage of the case to issuance. Alternatively should the Examiner feel that a personal discussion might be helpful in advancing this case to allowance, they are invited to telephone the undersigned.

Respectfully submitted,



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